General

Guideline Title

Work-related complex regional pain syndrome (CRPS): diagnosis and treatment.

Bibliographic Source(s)

Washington State Department of Labor and Industries. Work-related complex regional pain syndrome (CRPS): diagnosis and treatment. Olympia (WA): Washington State Department of Labor and Industries; 2011 Oct 1. 11 p. [28 references]

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Washington State Department of Labor and Industries. Complex regional pain syndrome (CRPS). Olympia (WA): Washington State Department of Labor and Industries; 2002 Aug. 9 p.

Regulatory Alert

FDA Warning/Regulatory Alert

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- March 22, 2016 – Opioid pain medicines : The U.S. Food and Drug Administration (FDA) is warning about several safety issues with the entire class of opioid pain medicines. These safety risks are potentially harmful interactions with numerous other medications, problems with the adrenal glands, and decreased sex hormone levels. They are requiring changes to the labels of all opioid drugs to warn about these risks.

Recommendations

Major Recommendations

Definitions for the classes of evidence (I-IV) are provided at the end of the "Major Recommendations" field.

Making the Diagnosis

Diagnostic Criteria for Complex Regional Pain Syndrome (CRPS)

To make a clinical diagnosis, the patient must meet *all four* of the following criteria:

1. Continuing pain, which is disproportionate to any inciting event
2. At least one symptom in *three of the four* following categories must be reported:
   - Sensory: Reports of hyperalgesia and/or allodynia (to pinprick, light touch, deep somatic pressure, and/or joint movement)
   - Vasomotor: Reports of instability and/or asymmetry of skin temperature and/or color
   - Sudomotor/Edema: Reports of instability and/or asymmetry of sweating and/or edema
   - Motor/Trophic: Reports of decreased range of motion and/or motor dysfunction (e.g., weakness, tremor, dystonia) and/or trophic changes (e.g., hair, nails, skin)
3. At least one sign in *two or more* of the following categories must be identified by objective clinical findings documented in the medical record over the course of one or more examinations:
   - Sensory: Evidence of hyperalgesia and/or allodynia (to pinprick, light touch, deep somatic pressure, and/or joint movement)
   - Vasomotor: Evidence of instability and/or asymmetry of skin temperature and/or color
   - Sudomotor/Edema: Evidence of instability and/or asymmetry of sweating and/or edema
   - Motor/Trophic: Evidence of decreased range of motion and/or motor dysfunction (e.g., weakness, tremor, dystonia) and/or trophic changes (e.g., hair, nails, skin)

   Note: A three-phase bone scan that is abnormal in a pattern characteristic of CRPS can be substituted for one of the signs in this section. (This is the committee's modification of the Budapest criteria.)
4. There is no other diagnosis that better explains the signs and symptoms

Treatment

A. Have a Treatment Plan

Treatment for CRPS should be initiated early and aggressively. An interdisciplinary approach is often useful. A treatment plan should encourage patients to take an active role in their rehabilitation plan. This can include having the patient keep a journal, to record symptoms, activity tolerance, and pain and function levels. Emphasis should be on improving functional activity in the *symptomatic* limb and should include elements of the following:

- Physical therapy (PT) or occupational therapy (OT)
- Medication for pain control
- Psychological or psychiatric consultation and therapy
- Sympathetic blocks
- Multidisciplinary program for pain management

1. Physical and Occupational Therapy

   A physical or occupational therapy treatment plan specific to CRPS should be developed by a therapist who is experienced in the treatment of CRPS. Therapy should be active, focused on desensitization, normalizing movement patterns, improving strength and range of motion and improving functional activities. A CRPS- focused physical or occupational therapy plan should include the following elements:

   A. An evaluation to include:
      1. Date of onset of original injury (helpful in determining if early or late stage) and a date of onset of the CRPS symptoms and signs
      2. Baseline objective measurements including range of motion (ROM) of all involved joints, strength, sensory loss, hypersensitivity, appearance, temperature, function (e.g., weight bearing and gait for lower extremity; fine motor tasks, pinch and grip for upper extremity), and use of assistive devices, braces and orthotics. If possible, include objective measurements of swelling.
   B. Specific, measurable functional goals which will allow assessment of progress and the effectiveness of treatment for the affected area
   C. All treatment programs should include a core of:
      1. Desensitization
      2. Neuromuscular re-education, which might include graded motor imagery, mirror box therapy or other techniques to promote normalization of neuromuscular function (Level II Evidence)
      3. A progressive, active exercise program designed to promote improvement in ROM, strength and endurance

4. Activities targeted to attain the functional goals, e.g., weight bearing and gait training for the lower extremity and fine motor tasks for the upper extremity
5. A monitored home exercise program to promote the patient's participation in rehabilitation activities on a daily basis

D. Documentation should be done at least every two weeks to include:
1. Reassessment of relevant baseline measurements described above. This provides objective evidence of response or non-response to treatment
2. Assessment of progress toward functional goals (e.g., how the condition interferes with daily activities or activities related to employment)
3. Level of patient motivation
4. Participation in a home exercise program

2. Medication for Pain Control

Pain inhibits movement, and inadequate pain control may be an obstacle to activity, so judicious use of medications for pain control can be a useful adjunct to therapy. There is no drug with high-quality evidence to support use in either pain reduction or facilitation of function in CRPS. However, the committee recognizes that various medications are commonly used in clinical practice to manage pain or associated symptoms in CRPS. The categories of medications often used include non-steroidal anti-inflammatory drugs (NSAIDs), anticonvulsants, antidepressants, opioids, N-methyl-D-aspartate receptor antagonists (NMDA), antihypertensives, alpha-adrenergic agents, calcitonin and bisphosphonates. Selection of a particular agent may be influenced by the specific symptom or associated co-morbidities. These medications may be useful in helping a patient engage in therapy and regain function — the keys to successful management of CRPS.

The benefits of pain control should be weighed against the risks associated with adverse side effects. This is a particular challenge when using opioid medications for chronic pain. The Guideline on Opioid Dosing for Chronic Non-Cancer Pain, developed by the Washington State Agency Medical Directors Group (AMDG) can help: http://www.agencymeddirectors.wa.gov/Files/OpioidGdline.pdf.

3. Psychological or Psychiatric Consultation and Therapy

It is not uncommon for a fear-avoidance behavior pattern to emerge with a CRPS diagnosis. Patients are frequently fearful that pain indicates danger. They are sometimes concerned that ongoing pain means their condition has been misdiagnosed. Consequently, education and frequent reassurance are essential. This may be addressed using cognitive-behavioral therapy. In many cases, there is a more substantial psychological barrier to using the limb that warrants direct attention. If a co-morbid mental illness is identified that warrants formal psychiatric evaluation and treatment, screening or referral to the appropriate specialist may be needed.

4. Sympathetic Blocks

Sympathetic blocks have long been a standard treatment for CRPS and can be useful for a subset of cases. Stellate ganglion blocks (cervical sympathetic blocks) and lumbar sympathetic blocks are widely used in the management of upper and lower extremity CRPS. There is limited evidence to confirm effectiveness. An initial trial of up to three sympathetic blocks should be considered when the condition fails to improve with conservative treatment, including analgesia and physical therapy.

The most common way to administer sympathetic blocks is single local anesthetic injections. Selection of sympathetic block technique depends on each case, reflecting in part the patient's needs and the interventional pain specialist's preference and expertise. The current standard of practice is to use image guided approaches, such as with fluoroscopy and ultrasound, since complications of blind injections may include airway hematomas, inadvertent intravascular or central neuraxial injections, and esophageal puncture. Sympathetic blocks done without imaging guidance will not be authorized by the Department.

When sympathetic blocks are helpful, the benefit is evident within the first days following the nerve block. The optimal timing, number, or frequency of blocks, have not been specified. Patients who have a shorter duration of symptoms seem to have a greater response to treatment. Documentation of a physiologic response (e.g., change in skin temperature of the affected limb or Horner's syndrome) is required to demonstrate that the block was successful. For sympathetic blocks to support lasting improvement, they should be combined with physical and behavioral therapies. Therapy should occur within 24 hours of the block or, if possible, on the same day of the block. An effective block is expected to produce at least 50% improvement in pain and a concomitant increase in function. Sympathetic blocks may be repeated only when there is objective evidence of progressive improvement in pain and function.

5. Multidisciplinary Treatment

A multidisciplinary program for pain management will provide coordinated and closely monitored care using physical and/or occupational therapy, medication management, psychological screening and counseling, patient education, and other pain management techniques. The goal is to coordinate therapeutic interventions that ensure adequate pain control so reactivation of the

affected body part can occur.

It is recommended that the attending provider and the pain management team communicate regularly about the patient's treatment plan and progress towards treatment goals. Therapists and pain management staff should routinely report objective and quantifiable measures of functional improvement and pain tolerance and alert the attending provider if progress is not occurring. The objective is to act quickly so that the treatment team may take actions to quickly get the patient back on the expected course of recovery.

B. Treatment Phases

Treatment can be thought of in phases. Although each phase has a general time frame, the time needed for an individual case is difficult to predict. Each phase can be shortened or lengthened as needed, allowing patients to move from one phase to another depending on their individual progress.

1. Phase One – Prevention and Mitigation of CRPS Risk Factors

   The duration of Phase One will depend on the expected healing time for the specific injury, commonly spanning the first few weeks following the injury. The emphasis during Phase One is on pain control, appropriate mobilization, and monitoring of pain and function. After an initial injury, the patient should be encouraged to move as much as is safe for whatever injury he or she has. Physical therapy/occupational therapy (PT/OT) will be directed at what is appropriate for the specific injury and may be limited during this phase.

   While there are no fixed rules as to the time of immobilization for a given injury, 6 to 8 weeks for the upper extremity and 8 to 12 weeks for the lower extremity are typical durations. It may be worth noting that mobility can continue in spite of casting. For example a patient in a long arm cast can still move his fingers, and a patient in an ankle cast can still move his toes. With appropriate immobilization, pain should generally decrease progressively with time. If pain is not decreasing over time, the provider must reassess the plan of treatment. If at any point the patient demonstrates unusual distress, pain complaints that appear to be out of proportion to the injury, or unexpectedly slow progress, the frequency of clinic visits should be increased. In this situation, it is important to consider the possibility of a missed diagnosis or an unrecognized comorbidity such as a behavioral or substance abuse disorder.

2. Phase Two – Recovery is Not Normal

   The sooner treatment for suspected CRPS is initiated, the more likely it is that the long term outcome will be good. When recovery is delayed, and if no specific cause for the delay is identified, CRPS may be the diagnosis. Referral to a pain management or rehabilitation medicine specialist is strongly recommended.

3. Phase Three – CRPS Initial Treatment

   Following a CRPS diagnosis, treatment should be initiated early and aggressively in the patient's community whenever possible. Care should be coordinated and include physical or occupational therapy, psychological or psychiatric therapy, and medication management. An initial sympathetic block trial may be considered in cases that do not demonstrate functional gains during initial treatment.

4. Phase Four – CRPS Intensive Treatment

   When the patient is unlikely to benefit from Phase Three treatment, an immediate referral to a multidisciplinary treatment program may be made. If the patient's condition has not substantially improved within 6 weeks of Phase Three treatment, referral to an approved multidisciplinary treatment program is recommended.

5. Treatment Not Authorized for CRPS

   The Department will not authorize the following interventions for CRPS:

   - Sympathectomy (no effect/no improvement in function)
   - Spinal cord stimulation (non-covered benefit; see Health Technology Assessment decision 2010: http://www.hta.hca.wa.gov/documents/adopted_findings_decision_scs_102510.pdf)
   - Ketamine infusions (no effect/no improvement in function, serious adverse events) (Level II Evidence)

Definitions:

Classification of Evidence

I. Randomized controlled trial (treatment) or prospective study (diagnosis)
II. Prospective study or randomized controlled trial (treatment) or well-designed retrospective study or prospective study (diagnosis)
III. All other controlled studies (treatment) or retrospective study (diagnosis)
IV. Case series or expert opinion (treatment, diagnosis)

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Work-related complex regional pain syndrome (CRPS), sometimes referred to as reflex sympathetic dystrophy or causalgia (CRPS type I and CRPS type II)

Guideline Category

Diagnosis

Evaluation

Prevention

Rehabilitation

Treatment

Clinical Specialty

Family Practice

Internal Medicine

Neurology

Orthopedic Surgery

Physical Medicine and Rehabilitation

Psychiatry

Psychology

Rheumatology

Intended Users

Advanced Practice Nurses

Health Care Providers

Health Plans

Occupational Therapists

Physical Therapists

Physicians

Psychologists/Non-physician Behavioral Health Clinicians

Utilization Management

Guideline Objective(s)

- To provide clinical guidance that ensures high quality care for injured workers in Washington State
- To present recommendations for diagnosis and treatment of complex regional pain syndrome (CRPS)

Target Population

Injured workers with complex regional pain syndrome (CRPS)

Interventions and Practices Considered

Diagnosis/Evaluation

1. Establishing work-relatedness
2. Recognition of signs and symptoms of complex regional pain syndrome
3. Three-phase bone scintigraphy
4. Use of modified "Budapest Criteria" for diagnosis

Treatment/Management/Rehabilitation

1. Physical or occupational therapy to restore function
2. Sympathetic blocks or medications to control pain
3. Psychological or psychiatric consultation and therapy
4. Multidisciplinary treatment program
5. Use of a phased approach to treatment

Note: The following treatments were considered but specifically not recommended: sympathectomy, spinal cord stimulation, ketamine infusions.

Major Outcomes Considered

Decrease in pain over time

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

A general search was done using Google and Wikipedia to gain familiarity with the condition. The Cochrane Review Library was searched for systematic reviews/meta-analyses on the condition. Finally, PubMed was used for an extensive search on complex regional pain syndrome (CRPS). Articles were retrieved by the Labor and Industries librarians.

The bulk of the literature search and review was conducted during August 2010 to March 2011. Additional searches were conducted as requested by the Industrial Insurance Medical Advisory Committee Subcommittee members. Search results were limited to human adults only and English only. Studies were published in the last 10 years.

The following keywords were used in PubMed:

Terms for CRPS (the condition) were searched in combination with terms for each of the other categories (work-relatedness, diagnosis, treatment).

The condition: complex regional pain syndrome, reflex sympathetic dystrophy, causalgia

Work-relatedness: occupational health, injury, disease, work, active worker, job*, employ*, workers compensation, activity, daily living, return to work, disability, daily activity

Diagnosis: diagnosis, symptoms, signs, validity, reliability, sensitivity, specificity, bone scans, bone scintigraphy, thermography, volumetry, volumetric analysis, imaging, electrodiagnostic studies, magnetic resonance imaging

Treatment: treatment, therapy, interventions, surgery

Number of Source Documents

One hundred and forty-four studies were reviewed and 28 cited.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Classification of Evidence*

I. Randomized controlled trial (treatment) or prospective study (diagnosis)
II. Prospective study or randomized controlled trial (treatment) or well-designed retrospective study or prospective study (diagnosis)
III. All other controlled studies (treatment) or retrospective study (diagnosis)
IV. Case series or expert opinion (treatment, diagnosis)

*Refer to (https://www.aan.com/globals/axon/assets/2535.pdf) for list of criteria in full detail

Methods Used to Analyze the Evidence

Systematic Review

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Guideline development uses the best available scientific evidence and expert consensus. The process can be described in the following steps:

1. A subcommittee of the Industrial Insurance Medical Advisory Committee (IIMAC) was formed with practicing physicians and contracted utilization review physicians.
2. A systematic review and summary of the relevant peer reviewed medical literature was done and was presented to the subcommittee for

their review. Claim and billing data from Labor & Industries was also reviewed.
3. The findings from the literature review were categorized and adapted into the first draft guideline.
4. Subcommittee members critiqued and revised the draft guideline based on what was most useful for the clinician in diagnosing and treating complex regional pain syndrome (CRPS).

Rating Scheme for the Strength of the Recommendations

Not applicable

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

The draft guideline was vetted with the public and sent to various physician specialty associations and listservs, resulting in a second draft. The final draft was presented in a public meeting and was shared with the full advisory committee to obtain their input and approval.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for selected recommendations (see the "Major Recommendations" field).

This guideline is based on the best available clinical and scientific evidence from a systematic review of the literature and a consensus of expert opinion. The types of evidence supporting each recommendation include randomized controlled trials, prospective studies, case series.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

- Physical restoration and pain control for chronic regional pain syndrome (CRPS) through conservative treatment, analgesia, and physical therapy/occupational therapy
- Reduction in complication risk, quicker treatment and recovery, and reduced morbidity

Potential Harms

Adverse Effects of Pain Medication

The benefits of pain control should be weighed against the risks associated with adverse side effects. This is a particular challenge when using opioid medications for chronic pain.

Implementation of the Guideline

Description of Implementation Strategy

Most guidelines are implemented within the utilization review (UR) program. Labor and Industries (L&I) guidelines have priority over other proprietary guidelines and criteria that may exist. Where L&I guidelines are not available, proprietary ones may be used. Reviewers apply each guideline as a standard for the majority of requests in the Washington workers' compensation program. For the minority of workers who appear to fall outside of the guideline and whose complexity of clinical findings exceeds the specificity of the guideline, further review by a physician is conducted.

When a surgical procedure is requested for a patient who meets the guideline criteria, the reviewer will recommend approval to the claim manager. If the criteria are not met, the request will be referred to a physician consultant who will review the patient's file, offer to discuss the case with the requesting physician, and make a recommendation to the claim manager. The flexibility built into this decision-making process helps legitimize the work of the subcommittee in the eyes of practicing physicians in Washington.

Completed guidelines will be communicated to practicing physicians via L&I's website and through its provider listserv (http://www.lni.wa.gov/Main/Listservs/Provider.asp). Education and training will be provided to reviewers and staff to ensure their proper application within the UR program. Where possible, continuing medical education (CME) credits may be offered.

External Implementation

This guideline is used by the Department's utilization review vendor when there are requests for physical therapy that exceed a certain amount. Hence, the guideline developers share it with the contracted vendor. It is also disseminated to providers who have signed up on the Department's provider listserv and it was sent to various specialty societies and associations. A Provider Bulletin was also issued, which is the Department's primary means of communicating to all treating providers with whom they have accounts.

Internal Implementation

The guideline developers coordinate with that section of the Department that trains claim managers who make adjudicative decisions on cases of complex regional pain syndrome (CRPS), including authorization of medical services.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Living with Illness

IOM Domain

Effectiveness

Identifying Information and Availability

Bibliographic Source(s)

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Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

1997 Jun (revised 2011 Oct 1)

Guideline Developer(s)

Washington State Department of Labor and Industries - State/Local Government Agency [U.S.]

Source(s) of Funding

Washington State Department of Labor and Industries

Guideline Committee

Industrial Insurance Medical Advisory Committee, Subcommittee on Chronic Noncancer Pain

Composition of Group That Authored the Guideline

Industrial Insurance Medical Advisory Committee Members: Ruth Bishop MD, Andrew Friedman MD (*Chair*), Jordan Firestone MD PhD MPH, David Tauben MD, Gerald Yorioka MD

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Financial Disclosures/Conflicts of Interest

Not stated

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Washington State Department of Labor and Industries. Complex regional pain syndrome (CRPS). Olympia (WA): Washington State Department of Labor and Industries; 2002 Aug. 9 p.

Guideline Availability

Electronic copies: Available in Portable Document Format (PDF) from the Washington State Department of Labor and Industries Web site .

Print copies: L&I Warehouse, Department of Labor and Industries, P.O. Box 44843, Olympia, Washington 98504-4843.

Availability of Companion Documents

The following is available:

- Medical treatment guidelines for Washington Workers' Compensation. Washington State Department of Labor and Industries. Guideline process. Electronic copies: Available from the Washington State Department of Labor and Industries Web site .

Patient Resources

None available

NGC Status

This summary was completed by ECRI on July 24, 1999. The information was verified by the guideline developer on October 17, 1999. This summary was updated by ECRI on May 28, 2004. The information was verified by the guideline developer on June 14, 2004. This NGC summary was updated by ECRI Institute on December 2, 2011. This summary was updated by ECRI Institute on September 18, 2015 following the U.S. Food and Drug Administration advisory on non-aspirin nonsteroidal anti-inflammatory drugs (NSAIDs). This summary was updated by ECRI Institute on June 2, 2016 following the U.S. Food and Drug Administration advisory on Opioid pain medicines.

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